

# YEARS OF GROWTH AND CHANGE

## (1831–1936)

6

### TIME LINE

EVENTS ELSEWHERE	DATE	EVENTS IN AMERICA
	1859	First oil well drilled
	1860	Lincoln elected president
	1861	Civil War began
	1865	Civil War ended
	1866	First Atlantic cable laid
	1867	The Grange organized
	1869	Knights of Labor formed; women's suffrage in Wyoming Territory
<i>France gave Statue of Liberty to United States</i>	1876	First telephone
	1879	Edison's light bulb
<i>Most men in Britain had the right to vote</i>	1884	
<i>Gold found in South Africa</i>	1886	American Federation of Labor formed
	1889	Hull House opened in Chicago
	1890	Horseless carriage appeared; Sherman Anti-Trust Law
<i>Spanish-American War</i>	1898	
	1901	Wireless signals sent across Atlantic Ocean
	1903	Wright Brothers' flight
	1908	Model T sold
<i>World War I began</i>	1914	Clayton Anti-Trust Act
<i>World War I ended</i>	1918	
	1920	First radio station; Nineteenth Amendment passed
	1938	Congress of Industrial Organizations formed

### ACTIVATING PRIOR KNOWLEDGE

Watch for answers to these questions as you read.

- How were the lives of farmers improved?
- What good and bad things happened as transportation improved and businesses grew larger?
- How did American workers begin to solve problems with employers?
- Where did many immigrants come from and what problems did they face in the United States?

## INTRODUCTION

Many changes began to take place in the United States. The country's population was growing. People from other nations came to America in large numbers. Cities increased in size, and life on the farm changed. Changes were made in manufacturing, transportation, and communication. Working people demanded better wages and fairer treatment. Business changed. A few people became very rich and powerful. The nation was changing so fast it was hard to keep up with the new ideas.

## THE FARMER'S LIFE CHANGES

Now that the nation was settled, farmers had more land than ever on which to raise food for the growing nation. Wooden plows had long since been replaced by those with iron tips. Cyrus McCormick had invented the reaper, which, when pulled through a field, cut the grain and tied it into bundles. This was much faster than cutting the grain by hand with a scythe. A threshing machine had also been invented to separate the grain from the stalks.

### GEORGE WASHINGTON CARVER (1864–1943)

Carver knew where he was born, but he had to guess his birthday! He was born a slave. He taught himself to read, and at thirteen he went to find more education. Carver worked and went to school. He was brilliant and studied all he could about **agriculture**. He got his M.S. degree in agriculture in 1896.

Booker T. Washington asked Dr. Carver to come to Tuskegee Institute and start a department of agriculture.

Carver accepted and began studies that would help to save the economy of the South.

Cotton was still the major crop, but when prices fell, the South suffered. Dr. Carver told farmers to plant peanuts. He found 145 useful products that could be made from peanuts. His birthplace became a national monument 10 years after his death.

**agriculture**—the practice of growing crops and raising livestock; farming

Following the Civil War, an all-steel plow was invented. Seed-planting machines followed. Then came a combine, which cut and threshed the grain all at once. Horses were replaced by tractors, and American farmers found their whole way of life had changed. One farmer could farm more land and produce more food than ever before. Farms grew larger, especially in the West.

**Irrigation** was important to western farmers. Irrigation canals were dug to bring water from the mountains to the dry prairies. Dams stored water for use during dry times. Wells were dug, and water was pumped from under the ground. Today, huge sprinkling systems are spread across the dry lands of the West.

However, problems came with these improvements. The number of farm jobs

**irrigation**—the use of streams, ditches, canals, and other means to water crops instead of relying on rainfall

decreased. People who had no work other than farming found themselves moving to the city to take any work they could get.

As more and more food was raised, the price for farm crops often went down. This is called the law of supply and demand. When a lot of something is produced, it is likely to sell for a lower price. When little is produced, the price goes up.

What were farmers to do when the price fell on the crops they raised? The first thing they tried to do was raise more crops. Often the farmers wore out their land trying to raise more. Lands that were not cared for and **fertilized** soon wore out. Then the farmers were worse off than ever.

It often cost nearly as much to ship a crop to market as it did to buy the crop itself. In 1867, the Grange was organized. Farmers joined the Grange to learn about better farming. They also learned that a group of farmers had more strength than one farmer alone. Grange farmers marketed or sold their crops as a group. They protested high **freight** charges set by railroads.

Then farmers discovered another way to help themselves. They asked the government for laws to protect farmers from unfair transportation costs and from loss of their land when they had a bad year and could not pay their debts. When a congressman did not listen to the farmers, they voted against him in the next election. Soon, the farmers had a greater voice in government. They had discovered the truth to the saying "There is strength in numbers."

The government tried hard to help the farmers. Colleges to teach about farming were started. Today, the United States Department of Agriculture gives advice and tries to help solve farm problems. Many farm crops are given government support. This means farmers are guaranteed at least a certain price. They may get more, but they won't get less.

**fertilize**—to add nutrients to soil so that crops will grow

**freight**—goods carried by trains, trucks, or other vehicles

### CRITICAL THINKING

The government has spent billions of dollars in various forms of aid to farmers. Why have farmers received so much help?

## COMMUNICATION AND TRANSPORTATION

### CONTINUE TO IMPROVE

One area that changed greatly after the Civil War was communication. The telegraph had served well, but only within the United States. Cyrus Field wondered why the telegraph could not connect us to Europe. Since the wire could not go above the ocean, why not under the sea? Huge cables were made to carry many telegraph messages at once. Ships began laying the Atlantic cable under the ocean. Cables broke time after time, but Field kept trying. Finally, in 1866, the first cable was completed. Now people in the United States could send a message to Europe in a few seconds!

At the time Field was laying his cable, Alexander Graham Bell was trying to send the human voice over a wire. By 1876, the telephone worked. Two years later, New Haven, Connecticut, had a telephone system in use.

By 1901, an Italian named Guglielmo Marconi was sending wireless signals across the Atlantic Ocean. By 1920, the United States had its first radio station. The people of the nation seemed closer to one another when the entire nation could listen to the same radio program at the same time.

Television followed radio and made communication that much easier.

Robert Fulton would not have recognized the steamships that now began to travel the oceans. They were many times larger than his little *Clermont*, and they traveled much faster.

Railroads were being built faster and faster. Short rail lines appeared to cover the nation like spiderwebs. Soon, these short lines began to join together to make huge railroad systems. Railroad men like Cornelius Vanderbilt often combined dozens of small railroads into one system and became wealthy from the profits. Today, the railroads still carry huge amounts of freight.



Alexander Graham Bell

## THE ELECTRIC RAILWAY

Inventions by Thomas Edison and others helped develop the electric railway. It did a lot to make cities grow, because workers could ride to work quickly and cheaply. This allowed many workers to live in one huge city.

When the electric railway ran on tracks through a city, it was called a streetcar or a trolley. In some cities

such as New York, it often ran on tracks above the city and was known as an elevated. When it ran underground, people called it the subway.

Lines joined cities and towns and enabled people to live in a small town and work or shop in a city. Millions of people came to depend on the electric railway for transportation.

In the 1890s, strange little horseless carriages began to amuse the citizens and frighten the horses of America. In the time since then, thousands of different makes of cars have been produced in America.

Though Henry Ford did not make the first automobile, he did more for the auto industry than any other car maker. Ford used the idea of another inventor to make car manufacturing a big business. Do you remember Eli Whitney and his cotton gin? Well, we often forget that Whitney had another idea. He made rifles for the army using standard, or **interchangeable parts**. This meant the trigger from one rifle was the same as the trigger for any other rifle of the same model.

Ford used this same idea in building his cars. He started an assembly line. The workers stayed in one place, and the work came to them. Each worker did one job in the making of a car. Use of interchangeable parts and the assembly

**interchangeable parts**—parts made the same way each time so that they always fit with other parts

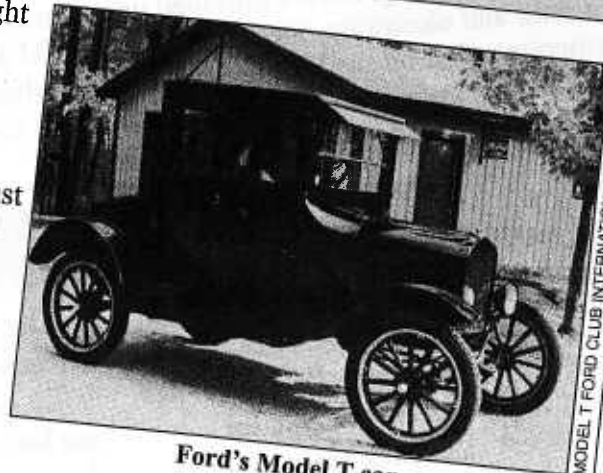
line increased car manufacturing. This **mass production** allowed Ford to sell his cars cheaply, since they were made so quickly.

### CRITICAL THINKING

Henry Ford made the United States the world's leading automobile maker. Today, people drive vehicles made in many nations. What are some of the reasons for this change?

When Orville and Wilbur Wright made the first successful airplane flight in 1903, the plane flew less distance than that between the tips of the wings of a Boeing 747. People looked AT the airplane as just an interesting toy at first. That idea soon changed. The airplane proved itself to be a great aid to rapid transportation.

In the last 100 years, improved communication and transportation have brought the people of our nation and the entire world closer together.



Ford's Model T car

### FREE PUBLIC EDUCATION

Until the 1800s, girls seldom went past elementary school. Academies and high schools were mostly for boys. By the 1830s and 1840s, a few places did have schools for girls. One of these later became Mount Holyoke College in Massachusetts. In Ohio, Oberlin College became the first college in America to accept both male and female students.

Though people saw the need for education, very few schools were paid for by public taxes. Only in New England were there many public schools.

During the time of Andrew Jackson, more people began to favor the idea of tax-supported schools. Labor groups helped push for free

public education. Workers wanted their children to be educated so they could lead easier lives than their parents had.

Gradually, citizens realized that if people are to have a **democracy**, they must be educated in order to make responsible choices. Big cities led the way in tax-supported public schools. By the middle of the 1800s, most of the states in the North had free public elementary schools.

Colleges were set up to train teachers. A movement began that resulted in free public high schools for all students.

Gradually public education as we now know it became available for all.

mass production  
making large  
numbers of  
quickly and

**democracy**—a  
form of government  
that is run by the  
people it serves



## THE UNITED STATES BECOMES AN INDUSTRIAL GIANT

After the Civil War, industry grew at a great rate. The Industrial Revolution made itself felt all over the country.

The United States had enough iron ore and coal to provide **raw materials** for manufacturing. Rivers provided water power to run factories before steam engines and electricity. Timber was a plentiful **natural resource**. In 1859, America's first oil well was drilled in Pennsylvania. Kerosene was then used for lighting instead of whale oil. The demand for oil products started the petroleum industry.

**raw materials**—materials or goods needed to make a final product

**natural resource**—a useful substance found in nature, such as coal, oil, or timber

### DRAKE'S OIL WELL AND THE USE OF KEROSENE

When Edwin Drake drilled for oil in Titusville, Pennsylvania, in 1859, people laughed at him. Petroleum had been sold for years as a cure for disease. A chemistry professor discovered that purified petroleum could be used for lighting and heating.

After three months of drilling, Drake hit oil. His well produced thirty barrels daily. Each barrel sold for about \$20.

Once the oil was purified, kerosene was produced. It burned easily and gave off light and heat. It was better than candles or whale oil. A new era began as people used kerosene.

Gasoline is also produced when kerosene is made. For many years, gasoline was considered worthless and burned off at the oil refinery.

Thomas Edison began to put electricity to use by inventing the lightbulb in 1879. Soon, electricity was serving Americans in both home and factory.

Thousands of other inventions and discoveries came one after another. American industry was producing more goods every day. Montgomery Ward started the idea of buying things from a mail-order catalog. Companies such as F. W. Woolworth built chain stores all over the nation. Huge department stores such as Marshall Field in Chicago sold thousands of different items in one store.

Huge companies called **corporations** were formed. Many people owned **stock** in a corporation. This meant that each stockholder owned a part of the business. By selling stock, a company could raise millions of dollars for new buildings and equipment so the corporation or company could grow even larger.

**corporation**—a large company formed by a group of investors

At one time a few individuals became famous for huge enterprises, such as Ford's mass-produced cars and Vanderbilt's railroad system. John D. Rockefeller came to control almost all of the American oil industry.

**stock**—a share in the ownership of a company

When the first oil well was drilled in 1859, it began one of the greatest money-making industries in the world. Huge oil discoveries were made in other states. People came to the oil boom towns just as they had gone to gold strikes.

John D. Rockefeller was a vegetable seller when he bought one oil refinery where crude oil was changed to kerosene. Then he bought more refineries, pipelines to carry oil, and everything needed for the oil business. Soon his

standard Oil Company controlled nearly all the nation's oil business. He had a **monopoly** on oil. Later, the government forced him to break up his giant company.

In 1848, a thirteen-year-old boy named Andrew Carnegie came to America to work in a cotton mill. He earned a little over a dollar a week. He moved on to different jobs, working hard and saving his money. Eventually, he got into bridge building. He needed steel for his bridges. Even though America had an iron and steel industry, most bridge steel came from England. There, a new process made it easier to make steel from iron. Carnegie set up his own steel mill in America, using the English method. As Carnegie's steel mill grew, he bought iron ore deposits along the Great Lakes. Then he bought a fleet of Great Lake ships and a railroad to carry the iron ore to his plant. His business became known as the United States Steel Corporation, the largest producer of steel in America.

Carnegie was a man who felt he should do good for America. He began giving money to towns and cities to build public libraries. Even though he gave away more than \$300 million, he was still a rich man.

By 1893, James J. Hill controlled the huge Great Northern railway system. His 20,000-mile-long system covered most of the Northwest from the Great Lakes westward. Hill realized that ranchers and farmers needed a way to get their crops to market. Hill gave them that way. Good rail transportation encouraged more ranchers and farmers to settle in the West. The more settlers, the more business for Hill's railroad.

Dozens of men made fortunes in railroads, coal, oil, timber, iron, and steel. Many made their money by overworking those who worked for them, by destroying the countryside, and by crushing anyone who got in their way. Such men came to be known as robber barons because of their ruthless ways. In spite of their selfishness, they did much to develop American industry.

### CRITICAL THINKING

The robber barons were responsible for much of America's industrial and transportation growth. How would American industry and transportation be different today if these men had not done what they did?

### MARY McLEOD BETHUNE (1875-1955)

Mary McLeod, who loved to learn, would not have had to walk ten miles to school if she had been white. She passed the school for whites on the way to her school each day.

When Mary McLeod finished college, she became a teacher, married, and moved to Florida, where she started her own school. For many years, most of her students were girls. But in 1923, her school merged with a nearby men's college. When the school needed money, she asked John D. Rockefeller for help. He and others gave money when Mrs. Bethune needed it. She did so well with her school that she became an adviser to Franklin D. Roosevelt. Her desire to provide education made a difference to many black children.

**monopoly**—  
complete contro  
an industry by o  
person or compa

## REVIEW: NEW IDEAS

Answer the following using words from what you have read in this unit so far. When you have answered the questions, find all of your answers in the word search below. These answers are written across, up and down, and backwards. Some answers cross each other. Circle each answer as you find it.

R I R R I G A T I O N O  
E D L E I F O R D E L I  
A E N O H P E L E T I L  
P M S Y S T E M I C N L  
E A I R P L A N E F E E  
R N P E T R O L E U M E  
A D R A W K H I L L H T  
C O R P O R A T I O N S  
Y L O P O N O M B J D G

1. Cyrus McCormick invented the \_\_\_\_\_ for farms.
2. \_\_\_\_\_ means watering farm crops.
3. Prices go up and down according to supply and \_\_\_\_\_.
4. Cyrus \_\_\_\_\_ laid the Atlantic cable.
5. What did Alexander Graham Bell invent? \_\_\_\_\_
6. \_\_\_\_\_ describes a number of railroads joined into one group.
7. Henry \_\_\_\_\_ was a famous automaker.
8. When a car moves from worker to worker as it is being built, the car is on an assembly \_\_\_\_\_.
9. Orville and Wilbur Wright made the first \_\_\_\_\_.
10. Another word for oil is \_\_\_\_\_.
11. Montgomery \_\_\_\_\_ began using mail-order catalogs.
12. Companies owned by stockholders are called \_\_\_\_\_.
13. When one person or company controls all of one industry, we call it a \_\_\_\_\_.
14. John D. Rockefeller controlled the Standard \_\_\_\_\_ Company.
15. Andrew Carnegie made a fortune making \_\_\_\_\_.
16. James J. \_\_\_\_\_ once controlled the Great Northern railway.